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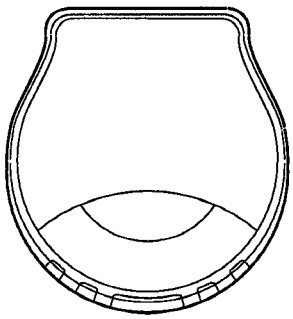
aiwa

aiwa SERVICE

XP-770
XP-779



COMPACT DISC PLAYER

- BASIC CD MECHANISM : KSM-542 DBA
- TYPE: 770(AU,AHR,AEZ,AK)
  779(AU)

SERVICE MANUAL

S/M Code No. 09-985-257-4FE

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SPECIFICATIONS

Tracking system: 1-beam laser
Laser pickup: Semiconductor laser
D/A conversion: 8-times oversampling digital filter + 1-bit DAC
Frequency response: 20 - 20,000 Hz
Output: PHONES/LINE OUT : stereo mini-jack
Maximum output: 12 mW + 12 mW (EIAJ 16 ohms at 1kHz)
500mV (47 k ohms at 1kHz)
Power supply: DC 3 V using two size AA (LR6) alkaline batteries
<770AU,779U,AHR>
DC 2.4V using commercially avaliable rechargeable batteries
<AEZ,AK>
DC 2.4V using supplied rechargeable batteries
AC house current using the supplied AC adaptor
Dimensions: 146.9 (W) x 28 (H) x 158.5 (D) mm ($5\ ^{7}/_{8}$ x $1\ ^{3}/_{8}$ x $6\ ^{1}/_{4}$ in.)
Weight: 240 grams (8.4 oz.) without batteries

<AC Adaptor>
Rated voltage:
<770AU,779AU>
AC-A62U : AC 120V,60Hz
<AHR>
AC-A62 : AC 110-120V / 220-240V, selectable 50/60Hz
<AEZ,AK>
AC-A62: AC 230 V, 50 Hz

<Supplied headphones HP-M013> (AEZ ONLY)
Type: In-ear type
Impedance: 16 ohms
Sensitivity: 107 dB/mW

<Recomended commercially available headphones>
Type: In ear type/Vertical type/headband type
Impedance: 16 - 32 ohms
Sensitivity: 100 - 109 dB/mW

<Car audio cassette adaptor> (779AU ONLY)
Frequency range: 50 - 20,000 Hz (It may differ depending on type of your cassette car stereo)
Cord length: 1.5 m (4 feet 11 inches)
Dimensions: 102.4 (W) x 12.1 (H) x 63.8 (D) mm ($4^{1}/_{8}$ x $^{1}/_{2}$ x $2^{5}/_{8}$ inches)
Weight Approx. 41g (1.4 oz)

<Car battery adaptor> (779AU ONLY)
Input voltage: DC 12 V/24 V
Output voltage: DC 6 V 300 mA
Cord length 1.5 m (4 feet 11 inches)
Weight Approx. 53g (1.9 oz)

• Design and specifications are subject to change without notice.

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PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!
WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserståling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!
Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyt-täjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

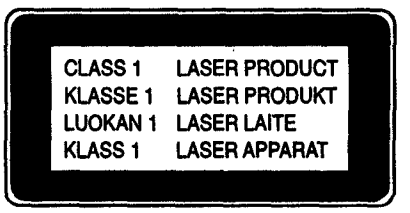
VARNING!
Om apparaten används på annat sätt än vad som specificeras i denna bruksanvising, kan användaren utsättas för osynling laserstrålning, som överskrider gränsen för laserklass 1.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!
Usynlig laserståling ved åbning, når sikkerhedsafbrydereer ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.

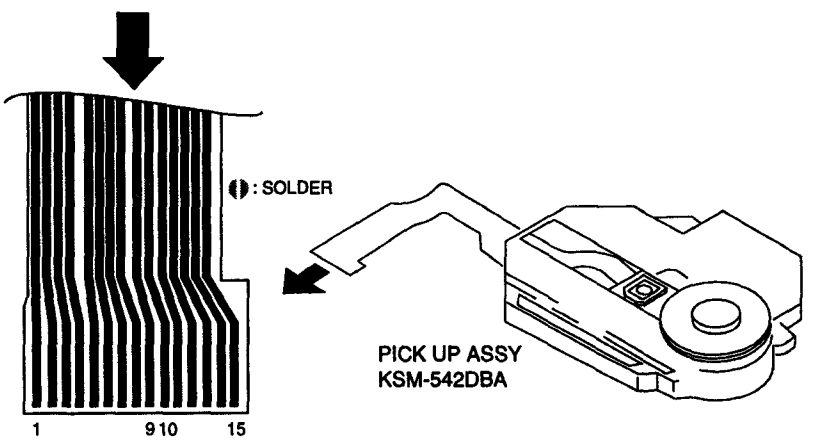


Precaution to replace Optical block

(KSS – 542D)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in right figure.



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ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC			
	87-A20-144-040		C-IC,BA3574BFS
	87-A20-894-010		C-IC,BH6515K
	87-A20-897-010		C-IC,BA6655FV
	87-A20-574-010		IC,SM5902 AF
	87-A20-614-010		C-IC,HM51W4400BLTT/BTT-7/8
	87-A20-892-010		C-IC,CXD2588R
	87-A20-928-040		C-IC,SM8141AV
	87-A20-963-010		C-IC,CXA1791N
	88-HC4-608-010		C-IC,CXP83417-139Q
TRANSISTOR			
	89-110-373-080		CHIP-TR,2SA1037 S
	87-026-608-080		C-TR,DTC 123 JK
	87-026-211-080		C-TR,DTA144EK
	87-026-580-080		C-TR,DTA123JK
	87-026-585-080		C-TR,IMX1 HQQ
	87-026-678-080		C-TR,FMG5A
	89-211-323-080		C-TR,2SB1132R
	87-A30-210-040		C-TR,2SB1590KQR
	87-A30-183-040		C-TR,2SD1628G
	89-113-695-680		C-TR,2SA1369G/H
	87-A30-203-080		C-FET,2SK3065
	89-416-643-080		C-TR,2SD1664R
	89-324-123-080		C-TR,2SC2412K S
DIODE			
	87-020-331-080		CHIP-DIODE,DAN202K
	87-A40-246-080		DIODE,IN4148 T-72
	84-XMC-624-080		C-DIODE,1SS250
	87-002-882-080		C-DIODE,RB425D
	87-A40-220-080		C-ZENER,RSZ5241B
MAIN C.B			
C101	87-016-557-080		CAP,E 100-6.3 SF
C102	87-010-186-080		CAP,CHIP 4700P
C103	87-016-526-080		C-CAP,S 0.47-16 BK
C104	87-012-156-080		C-CAP,S 220P-50 CH
C105	87-010-992-080		C-CAP,S 0.047-25 B
C108	87-012-188-080		C-CAP,U 47P-50 CH
C111	87-016-558-080		C-CAP,TN47-6.3F93B
C112	87-010-196-080		CHIP CAPACITOR,0.1-25
C113	87-016-296-080		C-CAP,TN 22-4SV(A)
C115	87-010-184-080		CHIP CAPACITOR 3300P(K)
C116	87-010-196-080		CHIP CAPACITOR,0.1-25
C117	87-010-196-080		CHIP CAPACITOR,0.1-25
C118	87-010-196-080		CHIP CAPACITOR,0.1-25
C119	87-010-831-080		C-CAP,U,0.1-16F
C121	87-012-197-080		C-CAP,U 150P-50 CH
C122	87-012-197-080		C-CAP,U 150P-50 CH
C123	87-012-272-080		C-CAP,U 680P-50 B
C124	87-012-272-080		C-CAP,U 680P-50 B
C151	87-010-502-040		CAP ELECT GAS 100/4
C152	87-010-196-080		CHIP CAPACITOR,0.1-25
C154	87-010-501-040		E/CAP GAS 47-4
C155	87-010-501-040		E/CAP GAS 47-4
C156	87-010-501-040		E/CAP GAS 47-4
C157	87-012-156-080		C-CAP,S 220P-50 CH
C158	87-010-314-080		C-CAP,S 22P-50V
C159	87-010-313-080		CAP, CHIP 18P
C160	87-012-156-080		C-CAP,S 220P-50 CH
C161	87-010-322-080		C-CAP,S 100P-50 CH
C162	87-010-178-080		CHIP CAP 1000P
C163	87-010-196-080		CHIP CAPACITOR,0.1-25
C201	87-010-502-040		CAP ELECT GAS 100/4
C202	87-010-805-080		CAP, S 1-16
C203	87-010-196-080		CHIP CAPACITOR,0.1-25
C206	87-010-805-080		CAP, S 1-16
C207	87-010-196-080		CHIP CAPACITOR,0.1-25
C208	87-010-196-080		CHIP CAPACITOR,0.1-25
C209	87-010-196-080		CHIP CAPACITOR,0.1-25
C210	87-010-196-080		CHIP CAPACITOR,0.1-25
C211	87-010-178-080		CHIP CAP 1000P
C212	87-012-337-080		C-CAP,U 56P-50 CH
C213	87-012-337-080		C-CAP,U 56P-50 CH
C251	87-016-296-080		C-CAP,TN 22-4SV(A)
C252	87-A10-811-080		C-CAP, 0.1-100 VC30E
C301	87-010-077-080		CAP,E 33-10 5L
C303	87-012-141-080		CHIP-CAPACITOR,0.22-16F
C305	87-016-296-080		C-CAP,TN 22-4SV(A)
C306	87-010-805-080		CAP, S 1-16
C307	87-016-296-080		C-CAP,TN 22-4SV(A)
C308	87-010-805-080		CAP, S 1-16
C310	87-010-805-080		CAP, S 1-16
C311	87-010-196-080		CHIP CAPACITOR,0.1-25
C312	87-010-196-080		CHIP CAPACITOR,0.1-25
C313	87-010-196-080		CHIP CAPACITOR,0.1-25
C315	87-018-134-080		CAPACITOR,TC-U 0.01-16
C321	87-010-805-080		CAP, S 1-16
C322	87-010-805-080		CAP, S 1-16
C331	87-010-503-040		CAP,E 220-4 GAS
C332	87-010-503-040		CAP,E 220-4 GAS
C333	87-010-178-080		CHIP CAP 1000P
C334	87-010-178-080		CHIP CAP 1000P
C335	87-010-196-080		CHIP CAPACITOR,0.1-25
C336	87-010-196-080		CHIP CAPACITOR,0.1-25
C341	87-010-178-080		CHIP CAP 1000P
C401	87-010-502-040		CAP ELECT GAS 100/4
C408	87-010-197-080		CAP, CHIP 0.01 DM
C501	87-010-502-040		CAP ELECT GAS 100/4
C502	87-010-503-040		CAP,E 220-4 GAS
C503	87-010-196-080		CHIP CAPACITOR,0.1-25
C504	87-010-805-080		CAP, S 1-16
C505	87-012-156-080		C-CAP,S 220P-50 CH
C506	87-010-197-080		CAP, CHIP 0.01 DM
C507	87-010-186-080		CAP,CHIP 4700P
C508	87-010-805-080		CAP, S 1-16
C511	87-010-185-080		C-CAP,S 3900P-50 B
C601	87-010-503-040		CAP,E 220-4 GAS
C602	87-010-079-040		CAP,E 100-6.3 5L
C603	87-A10-505-080		CAP,E 220-6.3 SF
C604	87-010-196-080		CHIP CAPACITOR,0.1-25
C605	87-012-156-080		C-CAP,S 220P-50 CH
C606	87-010-831-080		C-CAP,U,0.1-16F
C607	87-010-197-080		CAP, CHIP 0.01 DM
C608	87-010-178-080		CHIP CAP 1000P
C609	87-010-805-080		CAP, S 1-16
C610	87-010-196-080		CHIP CAPACITOR,0.1-25
C611	87-016-296-080		C-CAP,TN 22-4SV(A)
EL251	88-HC4-610-010		EL,8HC-4
FB331	87-A50-190-080		C-COIL,S BLM21A102S
FB332	87-A50-190-080		C-COIL,S BLM21A102S
FB341	87-A50-190-080		C-COIL,S BLM21A102S
FB342	87-A50-190-080		C-COIL,S BLM21A102S
J301	85-HC5-616-010		JACK,3.5 ST W/R GRN
L101	87-005-781-080		C-COIL,47UH FLC32C
L151	87-005-780-080		C-COIL,10UH FLC32C
L201	87-005-780-080		C-COIL,10UH FLC32C
L202	87-005-781-080		C-COIL,47UH FLC32C
L251	87-A50-281-080		C-COIL,LQH4N470UH K
L501	87-005-843-080		C-COIL,470UH K LQH3C
L601	88-HC4-615-040		C-COIL,39UH 7006-2M
LCD201	88-HC4-607-010		LCD,8HC-4
R606	87-022-525-080		C-RES,S 20K-1/10W F
SW201	87-A90-095-080		SW,TACT EVQ11G04M
SW202	87-A90-095-080		SW,TACT EVQ11G04M
SW203	87-A90-095-080		SW,TACT EVQ11G04M

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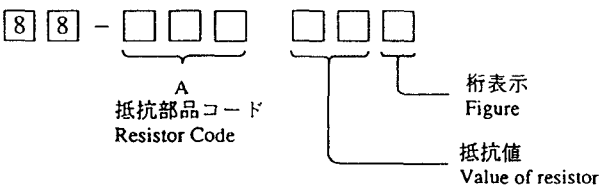
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
SW204	87-A90-095-080		SW,TACT EVQ11G04M
SW205	87-A90-095-080		SW,TACT EVQ11G04M
SW206	87-A90-095-080		SW,TACT EVQ11G04M
SW207	87-A90-095-080		SW,TACT EVQ11G04M
SW208	87-A90-494-080		C-SW,SL 1-1-3 SSSS81
SW209	87-A90-494-080		C-SW,SL 1-1-3 SSSS81
VR201	87-A90-462-010		VR,RTRY 30KCX2 H RK14J12A0
X101	87-A70-143-080		C-VIB,CER 16.93MHZ CSTCV-MX0C4
LED C.B			
C402	87-010-196-080		CHIP CAPACITOR,0.1-25
C403	87-010-178-080		CHIP CAP 1000P
C404	87-010-318-080		C-CAP,S 47P-50 CH
C406	87-010-196-080		CHIP CAPACITOR,0.1-25
LED401	88-HC4-611-010		LED,8HC-4 GRN
LED402	88-HC4-612-010		LED,8HC-4 YEL
LED403	88-HC4-613-010		LED,8HC-4 RED
DC C.B			
C701	87-A10-829-040		CAP,E 100-16 11L VR
C702	87-010-079-040		CAP,E 100-6.3 5L
C703	87-010-196-080		CHIP CAPACITOR,0.1-25
C704	87-010-196-080		CHIP CAPACITOR,0.1-25
C705	87-010-196-080		CHIP CAPACITOR,0.1-25
J701	87-099-391-010		JACK,DC 4.4 NEW EIAJ
SW701	87-036-109-010		PUSH SWITCH
CONNECTION C.B			

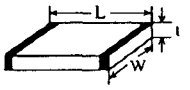
TEL 13942296513 QQ 376315150 892498299

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding



チップ抵抗
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm) 外形／Form	L	W	t	抵抗コード ：A Resistor Code: A
1／16W	1608	±5%	CJ		1.6	0.8	0.45	108
1／10W	2125	±5%	CJ		2	1.25	0 45	118
1／8W	3216	±5%	CJ		3.2	1.6	0.55	128

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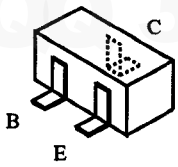
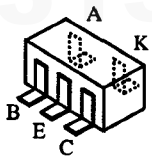
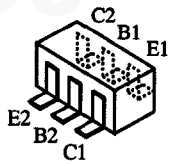
TRANSISTOR ILLUSTRATION



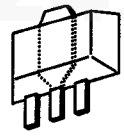
2SA1037
2SC2412
DTA144EK
DTC123JK
2SB1590K
DTA123JK



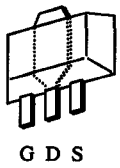
FMG5A



IMH1



2SA1369
2SB1132
2SD1664
2SD1628



2SK3065

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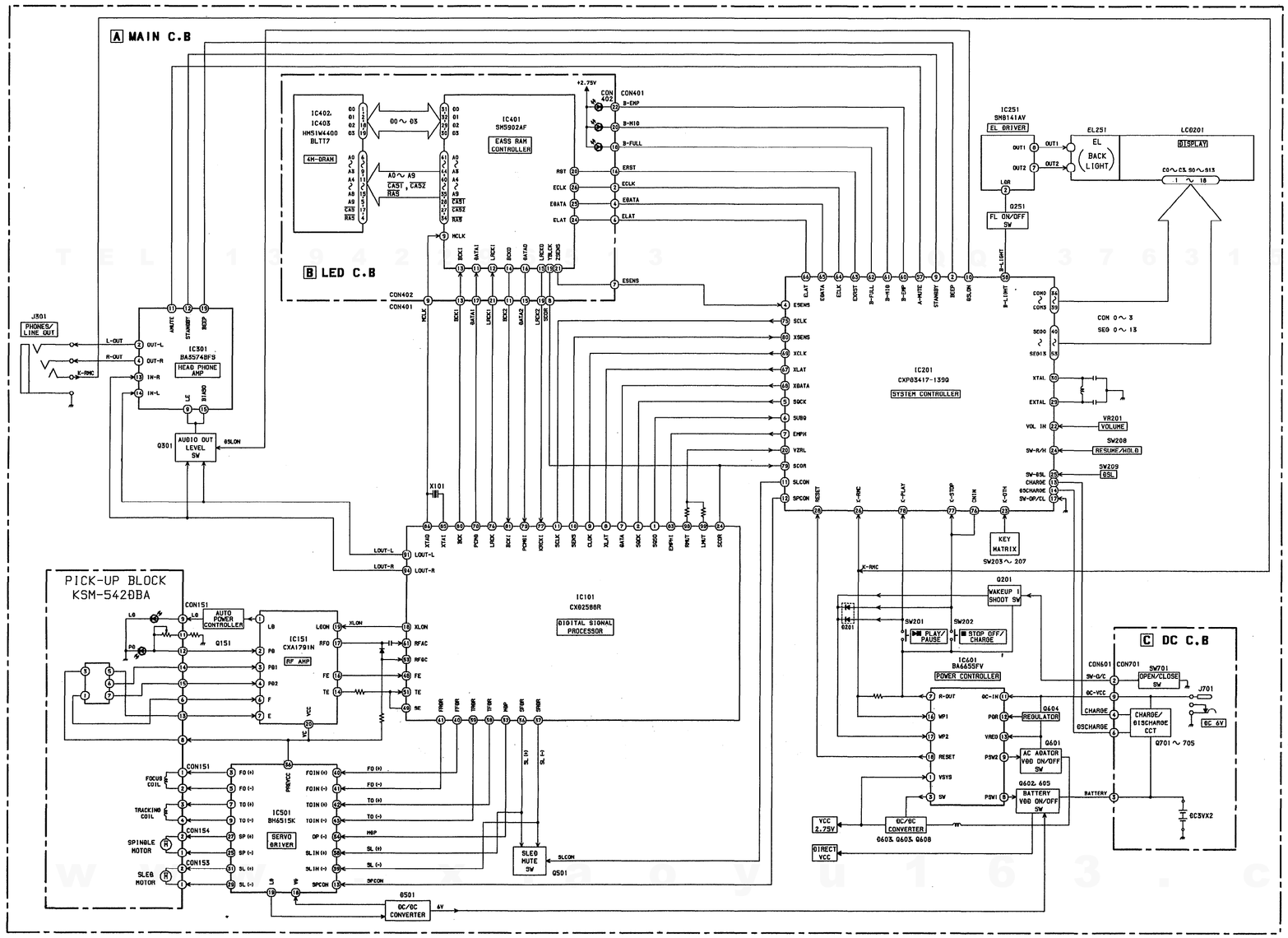
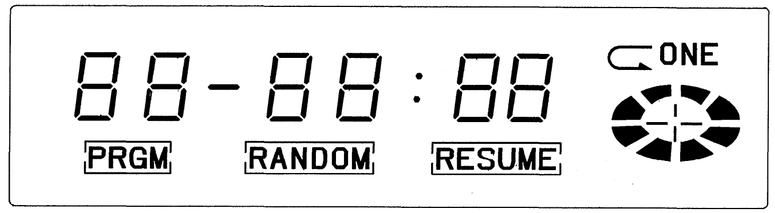
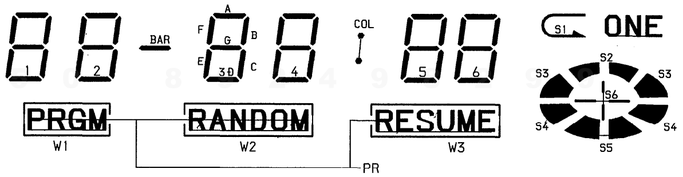
BLOCK DIAGRAM (MAIN / LED / DC)



LCD DISPLAY





NO	COM1	COM2	COM3	COM4
1	PR	1F	1E	1D
2	1A	1B	1G	1C
3	W1	2F	2E	2D
4	2A	2B	2G	2C
5	BAR	3F	3E	3D
6	3A	3E	3G	3C
7	W2	4F	4E	4D
8	4A	4B	4G	4C
9	COL	5F	5E	5D
10	5A	5B	5G	5C
11	W3	6F	6B	6D
12	6A	6B	6G	6C
13	S1	S2	S6	S5
14	ONE	S3	S4	—
15	COM1	—	—	—
16	—	COM2	—	—
17	—	—	COM3	—
18	—	—	—	COM4

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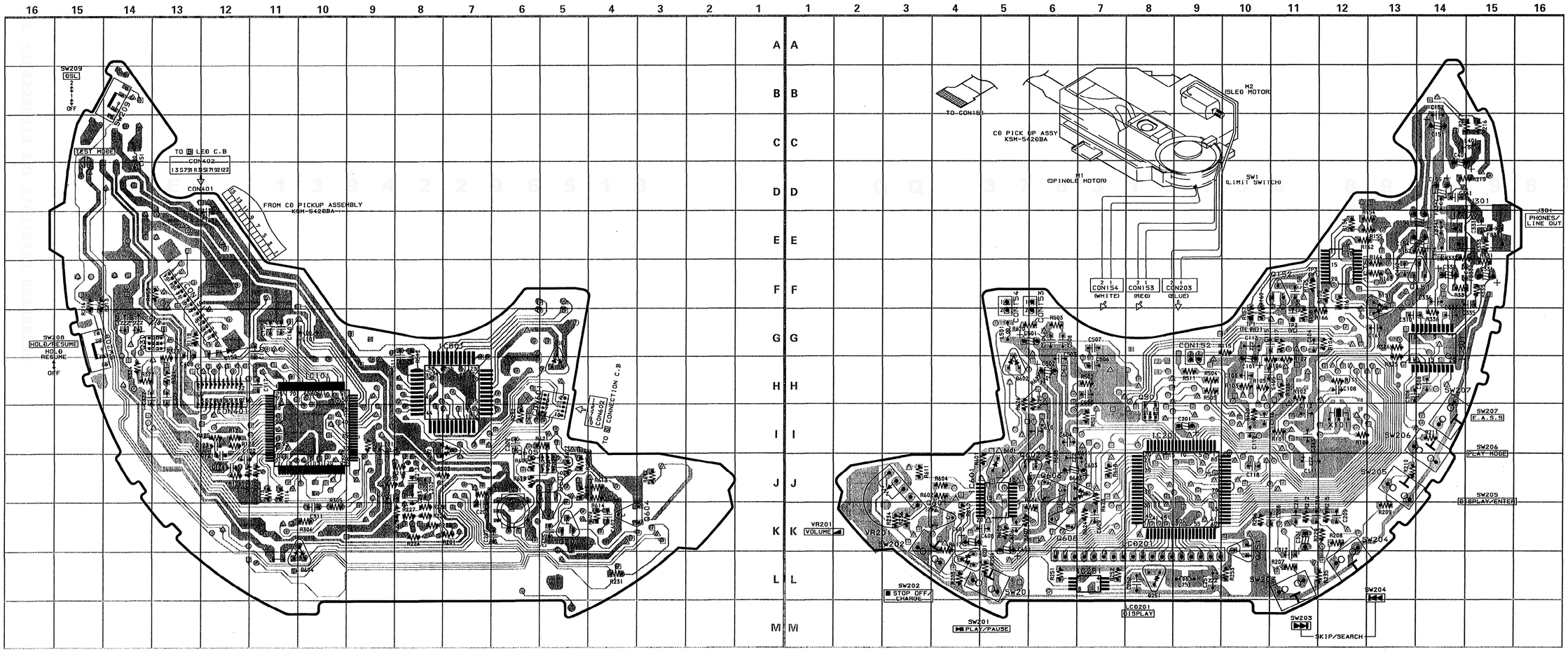
WIRING – 1 (MAIN)



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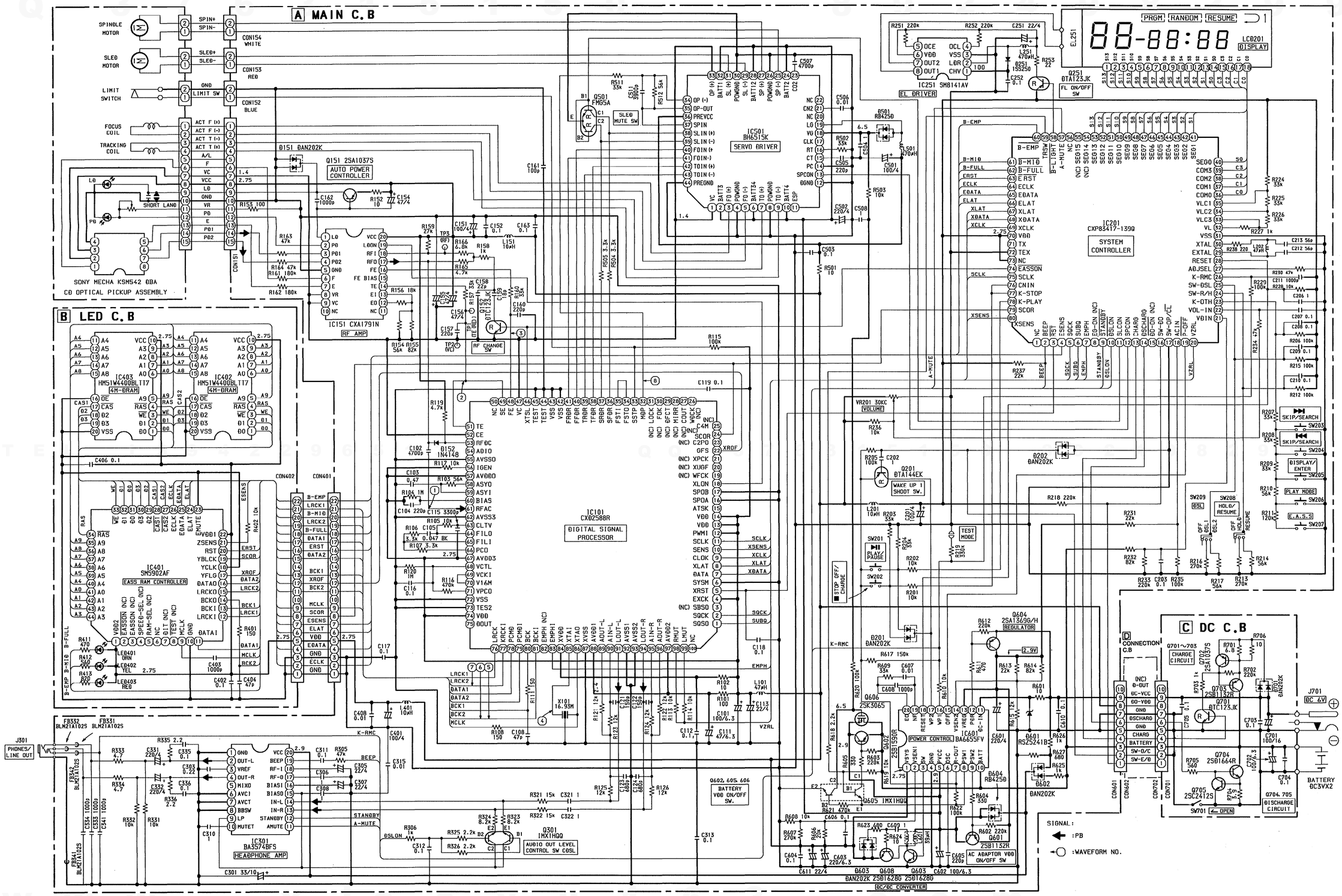
SCHEMATIC DIAGRAM (MAIN / LED / DC)



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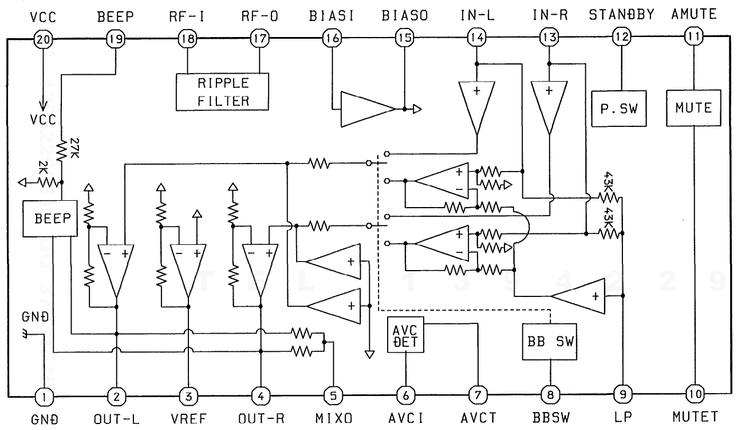
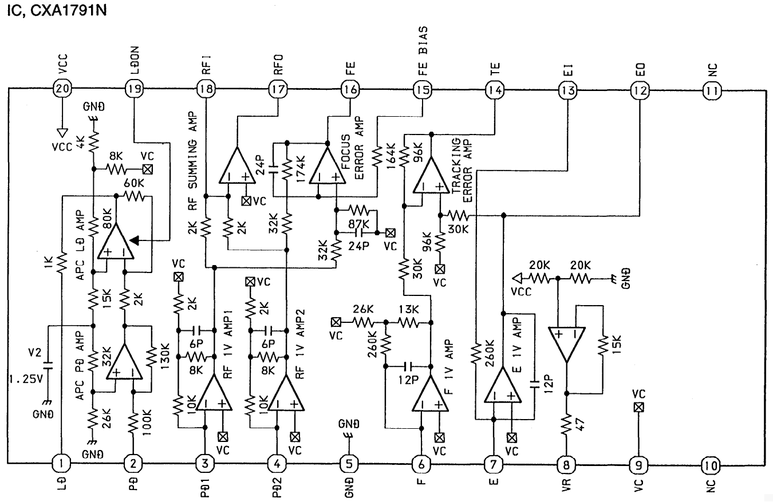
IC BLOCK DIAGRAM – 1

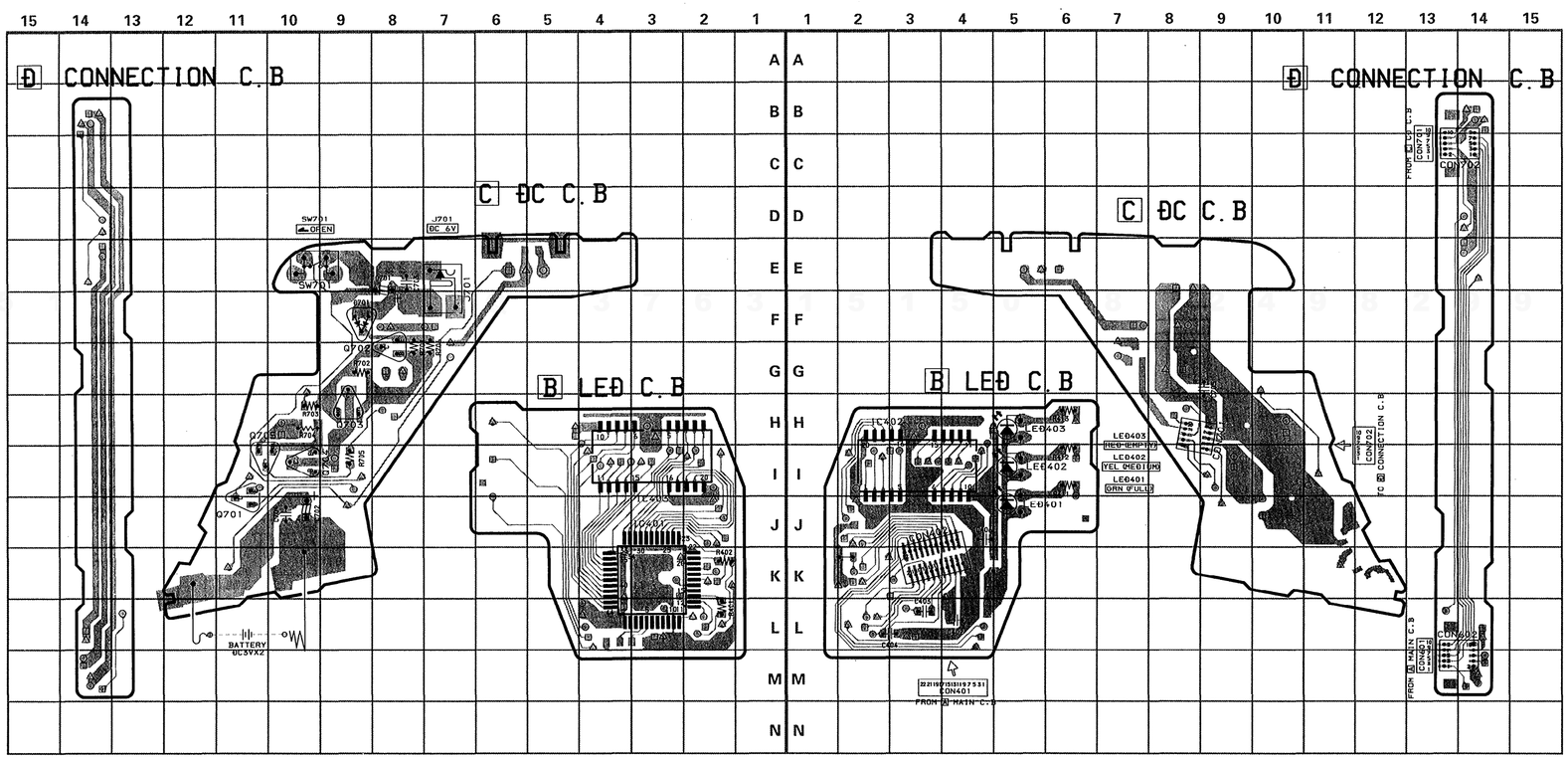
IC, BA3574FS



IC, CXA1791N



WIRING – 2 (LED / DC / CONNECTION)



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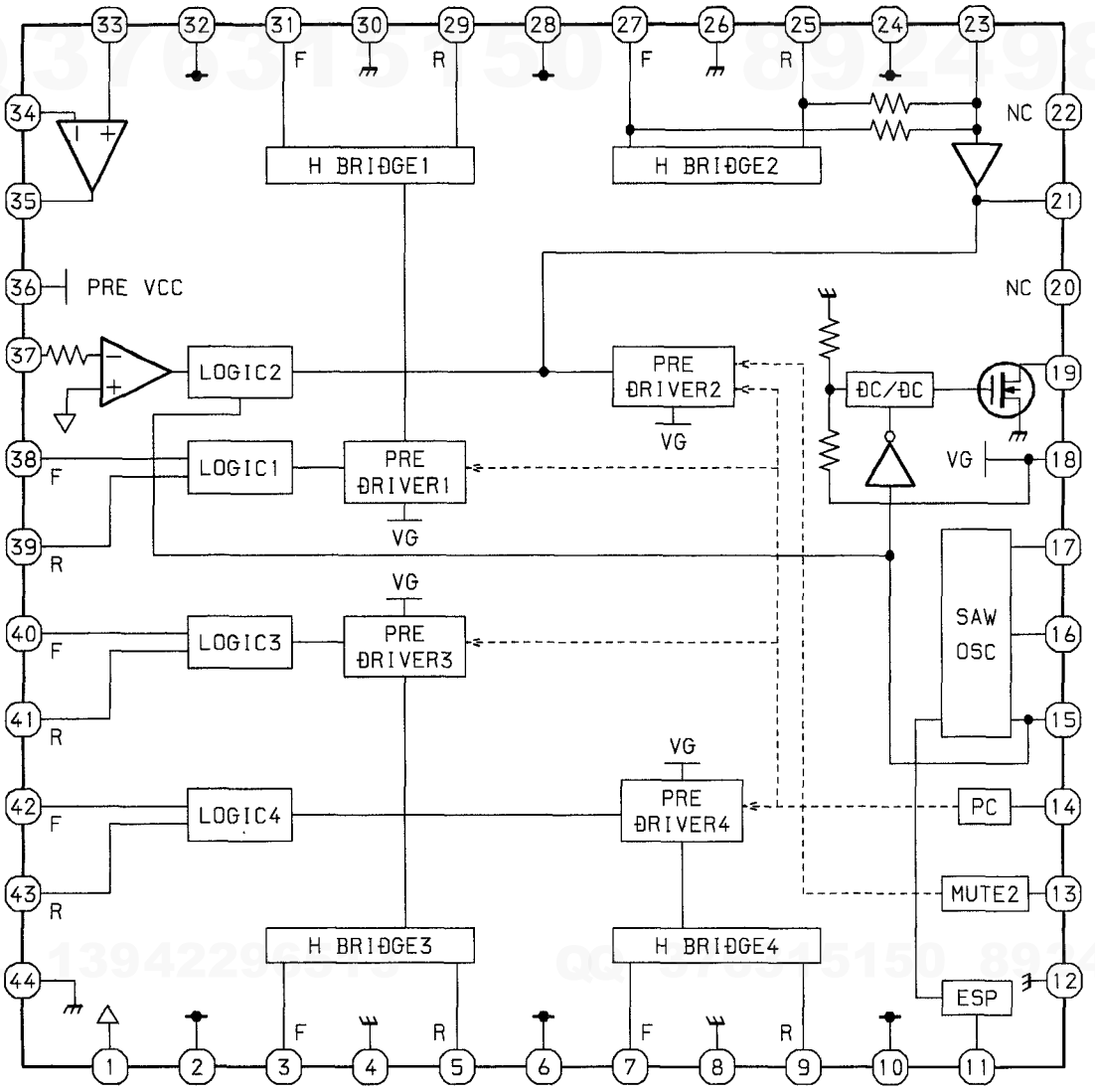
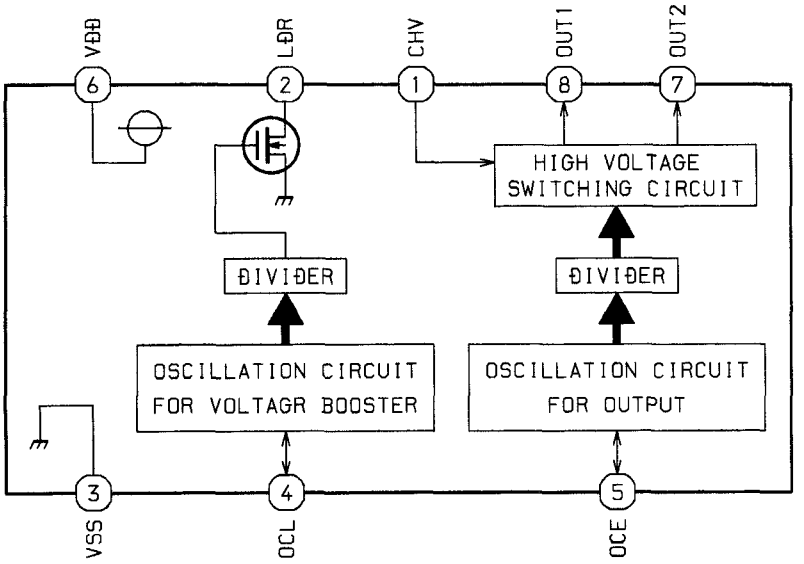
IC BLOCK DIAGRAM – 2

IC, BH6515K



IC, BH6515K



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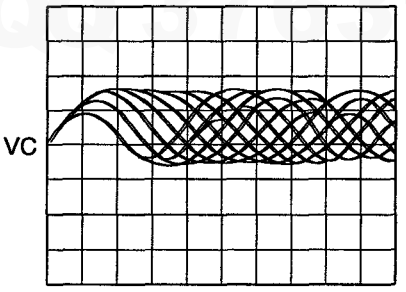
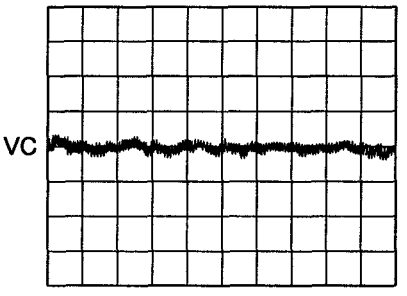
WAVEFORM

① IC101 Pin 61 (RF O) VOLT/DIV: 500mV TIME/DIV: 200nS

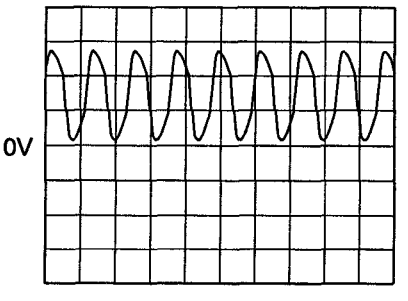


② IC101 Pin 49 & 51 (TA O) VOLT/DIV: 50mV TIME/DIV: 1mS

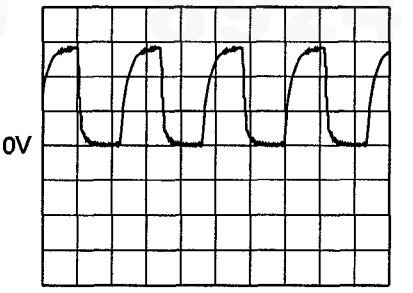


③ IC101 Pin 47 (FE O) VOLT/DIV: 50mV TIME/DIV: 1mS

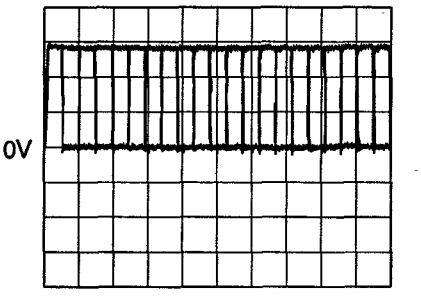
④ IC101 Pin 85 (XTAI) VOLT/DIV: 1V TIME/DIV: 50nS



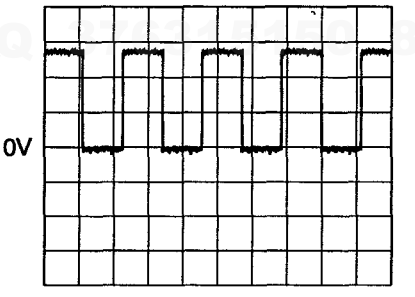
⑤ IC101 Pin 81 (BCK) VOLT/DIV: 1V TIME/DIV: 100nS



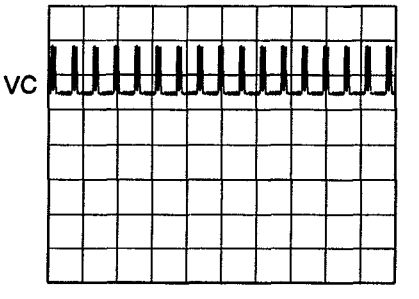
⑥ IC101 Pin 79 (PCMDI) VOLT/DIV: 1V TIME/DIV: 500nS



⑦ IC101 Pin 77 (KRCKI) VOLT/DIV: 1V TIME/DIV: 10μS



⑧ IC101 Pin 32 (MDP) VOLT/DIV: 1V TIME/DIV: 100μS



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IC DESCRIPTION

IC, CXP83417-139Q

Pin No.	Pin Name	I/O	Description
1	NC	–	Not connected.
2	BEEP	O	Beep output. Output 2kHz short form wave when beeping.
3	$\overline{\text{RST}}$	O	System reset output. Reset at "L", normally "H".
4	ESENS	I	Sense input from EASS controller.
5	SQCK	O	SUBQ read clock output.
6	SUBQ	I	SUBQ data input.
7	EMPH	O	Emphasis control terminal. ON at "H".
8	EG-ON (NC)	O	Ear guard ON/OFF output. ON at "H". (Not connected.)
9	$\overline{\text{STANDBY}}$	O	Headphone amp power ON standby output. "L" at standby.
10	$\overline{\text{DSLON}}$	O	DSL ON output.
11	SLCON	O	Sled control pulse output.
12	SPCON	O	Spindle motor control pulse output.
13	CHARG	O	Charge control output. Charge at "H".
14	DISCHARG	O	Discharge control output. Discharge at "H".
15	$\overline{\text{DO-ON}}$ (NC)	O	Digital out output. Output at "L". (Not connected.)
16	SW-DO	I	Digital out ON/OFF switch input. ON at "L".
17	SW-OP/$\overline{\text{CL}}$	I	CD cover OPEN/CLOSE detection switch. Close at "L".
18	ACIN	I	External power (AC) detection input. "H" at AC power on.
19	$\overline{\text{P-OFF}}$	O	Power OFF signal output. "L" when OFF output.
20	VZRL	I	Zero mute detection input.
21	VDIN	I	Internal battery voltage detection input.
22	VOL-IN	I	Volume level detection input.
23	K-OTH	I	Function key detection input.
24	SWR/H	I	RESUME / HOLD detection terminal.
25	SWDSL	I	DSL OFF / 1/2 detection terminal.
26	K-RMC	I	Remote control key detection terminal.
27	ADJSEL	I	Adjustment setting selection input.
28	RESET	I	Reset terminal.
29	EXTAL	I	System clock input terminal.
30	XTAL	O	System clock output terminal.
31	VSS	–	GND.
32	VL	–	Power supply for LCD bias terminals.
33 ~ 35	VLC3-1		
36 ~ 39	COM0-3	O	LCD common output.
40 ~ 53	SEG0-13	O	LCD segment output.
54,55	SEG14,15(NC)	–	LCD segment output. (Not connected.)
56	NC	–	Not connected.
57	A-MUTE	O	Audio mute output. Mute at "H".
58	$\overline{\text{B-LIGHT}}$	O	Output for LCD back lights. "L" when output.
59	TRSW	O	Power supply TR,FET switching terminal. "H" at less than 500ms.
60	$\overline{\text{B-EMP}}$	O	Remaining battery LED (EMP) indicator terminal. LED on at "L".

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Pin No.	Pin Name	I/O	Description
61	$\overline{\text{B-MID}}$	O	Remaining battery LED (MID) indicator terminal. LED on at "L".
62	$\overline{\text{B-FULL}}$	O	Remaining battery LED (FULL) indicator terminal. LED on at "L".
63	$\overline{\text{ERST}}$	O	EASS controller reset output. Reset at "L" or EASS off at "L".
64	ECLK	O	EASS controller serial data transfer clock output.
65	EDATA	O	EASS controller serial data output.
66	ELAT	O	EASS controller serial data latch output.
67	XLAT	O	Serial data latch output to DSP.
68	XDATA	O	Serial data output to DSP.
69	XCLK	O	Serial data transfer clock output to DSP.
70	VDD	–	Power supply.
71	TX (NC)	–	Not connected.
72	TEX	–	Connected to ground.
73	NC	–	Not connected.
74	$\overline{\text{EASSON}}$	O	EASS on ="L".
75	SCLK	O	Serial data clock output to DSP.
76	CNIN	I	Track count input.
77	K-STOP	I	Stop key detection input.
78	K-PLAY	I	Play key detection input.
79	SCOR	I	Sub code sync SCOR input.
80	XSENS	I	Sense input from CD DSP.

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IC,CXD2588R

Pin No.	Pin Name	I/O	Description
1	SQSO	O	SubQ 80 bit or PCM peak level data output. CD text data output.
2	SQCK	I	Clock input for SQSO read out.
3	SBSO	O	Serial output for Sub P-W.
4	EXCK	I	SBSO read out clock input.
5	XRST	I	System reset. "L" at reset.
6	SYSM	I	Mute input terminal. Mute at "H" setting.
7	DATA	I	Serial data input from CPU.
8	XLAT	I	Latch input from CPU. Latch serial data at fall down.
9	CLOK	I	Clock input to serial data transfer from CPU.
10	SENS	O	SENS signal output to CPU.
11	SCLK	I	Number of track jump are counted and input. Clock input to read SENS serial data.
12	PWMI	I	External control input for spindle motor.
13	VDD	–	Power supply.
14	VDD	–	Power supply.
15	ASTK (NC)	I/O	Anti-shock input/output. (Not connected.)
16	SPOA	I	Microcomputer expansion interface. (Input A)
17	SPOB	I	Microcomputer expansion interface. (Input B)
18	XLON	O	APC amp ON/OFF output. ON="H".
19	WFCK(NC)	O	WFCK output. (Not connected.)
20	XUGF (NC)	O	XUGF output. MNT1 or RPCK output by switching command. (Not connected.)
21	XPCK (NC)	O	XPCK output. MNT0 output by switching command.
22	GFS	O	GFS output. MNT3 or XRAOF output by switching command.
23	C2PO (NC)	O	C2PO output. GTOP output by switching command. (Not connected.)
24	SCOR	O	Output "H" when the subcode sync S0 or S1 is detected.
25	C4M (NC)	I	4.2336 MHz output.Output 1/4 divided frequency of VCKI at CAV-W mode.(Not used)
26	WDCK (NC)	O	D/A interface,word clock (2Fs) for 48-bit slot. (Not connected.)
27	COUT (NC)	I/O	Track number count signal input/output. (Not connected.)
28	MIRR (NC)	I/O	Mirror signal input/output. (Not connected.)
29	DFCT (NC)	I/O	Defect signal input/output. (Not connected.)
30	FOK (NC)	I/O	Focus OK input terminal. (Not connected.)
31	LOCK (NC)	I/O	GFS is sampled by 460 Hz. "H" output when GFS is at "H". "L" output when GFS is at "L" eight times continually and when LKIN = "H". (Not connected.)
32	MDP	O	Servo control for spindle motor.
33	SSTP	I	Input innermost track detection signal of disc.
34	FSTO	O	Output 2/3 frequency of XTAI terminal.
35	FSTI	I	Input 2/3 frequency of XTAI terminal.
36	SFDR	O	Sled drive output.
37	SRDR	O	Sled drive output.
38	TFDR	O	Tracking drive output.
39	TRDR	O	Tracking drive output.
40	FFDR	O	Focus drive output.

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Pin No.	Pin Name	I/O	Description
41	FRDR	O	Focus drive output.
42	VSS	–	GND.
43	VSS	–	GND.
44	TEST	I	Test terminal. Normally connected to ground.
45	TEST	I	Test terminal. Normally connected to ground.
46	XTSL	I	Crystal select input terminal. Crystal :16.9344MHz = "L", 33.8688MHz = "H".
47	VC	I	Mid point voltage input.
48	FE	I	Focus error signal input.
49	SE	I	Sled error signal input.
50	NC	–	Not connected.
51	TE	I	Tracking error input.
52	CE	I	Mid point servo analog input.
53	RFDC	I	RF signal input.
54	ADIO	O	OP amp output.
55	AVSS0	–	Analog GND.
56	IGEN	I	Constant current input for OP amp.
57	AVDD0	–	Analog power supply.
58	ASYO	O	EFM full swing output. (L=VSS, H=VDD)
59	ASYI	I	Comparison voltage input to asymmetry circuit.
60	BIAS	I	Constant current input to asymmetry circuit.
61	RFAC	I	EMF signal input.
62	AVSS3	–	Analog GND.
63	CLTV	I	VCO control voltage input for master.
64	FILO	O	Filter (slave = digital PLL) output for master PLL.
65	FILI	I	Filter input for master PLL.
66	PCO	O	Charge pump output for master PLL.
67	AVDD3	–	Analog power supply.
68	VCTL	I	VCO2 control voltage input for extensive EFM PLL.
69	VCKI	I	VCO2 oscillator input for extensive EFM PLL..
70	V16M	O	VCO2 oscillator output for extensive EFM PLL.
71	VPCO	O	Charge pump output for extensive EFM PLL.
72	VSS	–	GND.
73	TES2	I	Test terminal. Normally connected to GND.
74	VDD	–	Power supply.
75	DOUT	O	Output digital out signal.
76	LRCK	O	D/A interface, LR clock output f=Fs.
77	KRCKI	I	D/A interface, LR clock input.
78	PCMD	O	D/A interface, serial data output. (2's comp MSB first)
79	PCMDI	I	D/A interface, serial data input. (2's comp MSB first)
80	BCK	O	D/A interface bit clock output.
81	BCKI	I	D/A interface bit clock input.

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Pin No.	Pin Name	I/O	Description
82	EMPH (NC)	O	"H" when the playback disc has emphasis. "L" when it does not. (Not connected.)
83	EMPHI	I	De-emphasis ON/OFF. "H" when on, "L" when off.
84	XVDD	–	Power supply for master clock.
85	XTAI	I	Input terminal for cyrstal oscillator circuit. Input external master clock from this terminal.
86	XTAO	O	Output terminal for crystal oscillator circuit.
87	XVSS	–	GND terminal for master clock.
88	AVDD1	–	Analog power supply.
89	AOUT-L	O	Analog output (Lch) terminal.
90	AIN-L	I	OP amp input (Lch) terminal.
91	LOUT-L	O	Line output (Lch) terminal.
92	AVSS1	–	Analog GND.
93	AVSS2	–	Analog GND.
94	LOUT-R	O	Line output (Rch) terminal.
95	AIN-R	I	OP amp input (Rch) terminal.
96	AOUT-R	O	Analog output (Rch) terminal.
97	AVDD2	–	Analog power supply.
98	RMUT	O	Rch "0" detect flag.
99	LMUT	O	Lch "0" detect flag.
100	NC	–	Not connected.

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IC, SM5902AF

Pin No.	Pin Name	I/O	Description
1	VDD2	–	VDD power supply.
2	$\overline{\text{EASSON}}$ (NC)	O	EASS on = "L". (Not connected.)
3	EASSON (NC)	O	EASS on = "H". (Not connected.)
4	SPEED-SEL	I	Rotation speed select terminal when EASS.
5	RAM SEL	I	Select using D-RAM quantity.
6	NC	–	Not connected.
7	DIT (NC)	O	Digital audio interface terminal. (Not connected.)
8	$\overline{\text{TEST}}$ (NC)	I	Test terminal.
9	MCLK	I	16.9344MHz clock input.
10	GND	–	GND.
11	DATAI	I	Audio serial input data.
12	LRCKI	I	Audio serial input LR clock data.
13	BCKI	I	Audio serial input bit clock data.
14	BCKO	O	Audio serial output bit clock data.
15	LRCKO	O	Audio serial output LR clock data.
16	DATAO	O	Audio serial output data.
17	YFLG	I	RAM over-flow flag of signal processing IC.
18	YCLK	I	Frame clock for crystal oscillator system.
19	YBLCK	I	Subcode block clock signal.
20	RST	I	System reset terminal.
21	ZSENS	O	Microprocessor interface status output.
22	VDD1	–	VDD power supply pin.
23	EMUTE	I	Force mute terminal.
24	ELAT	I	Microprocessor interface latch clock input.
25	EDATA	I	Microprocessor interface serial data input.
26	ECLK	I	Microprocessor interface shift clock input.
27	$\overline{\text{CAS2}}$	O	D-RAM address 10 or D-RAM2 $\overline{\text{CAS}}$ control
28	$\overline{\text{CAS1}}$	O	D-RAM / $\overline{\text{CAS}}$ control.
29	D2	I/O	D-RAM data input/output 2.
30	D3	I/O	D-RAM data input/output 3.
31	D0	I/O	D-RAM data input/output 0.
32	D1	I/O	D-RAM data input/output 1.
33	$\overline{\text{WE}}$	O	D-RAM $\overline{\text{WE}}$ control.
34	$\overline{\text{RAS}}$	O	D-RAM $\overline{\text{RAS}}$ control.
35 ~ 40	A9-A4	O	D-RAM address 4-9.
41 ~ 44	A0-A3	O	D-RAM address 0-3.

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TEST MODE

* The servo circuit of this model is regulated for no manual adjustment, and its IC controls the whole process internally. This TEST MODE enables to monitor the adjustment status of each focus bias, tracking balance, tracking gain, and focus gain in the IC.

1. Starting TEST MODE
   1) Connect the AC plug.
   2) While OPEN/CLOSE SW is set to ON, hold the PLAY MODE key and short a *test land for one second.
   3) Check that all LCD light up while the *test land is on short. This indicates that TEST MODE is started.

   MEMO:
   1. During TEST MODE, the OPEN/CLOSE SW function is ignored, and it is not necessary to set the SW to ON for operation.
   2. Make sure that when a headphone jack is not plugged. TEST MODE cannot be started.

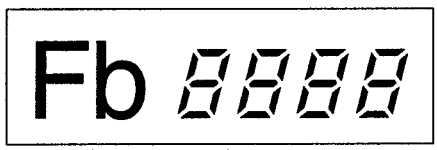
2. Focus search mode
   This mode enables to check the operation of focus search.

   Starting the mode: Press the STOP button to start the mode when at stop mode status . To finish the mode, press the STOP button again.
   During this mode, a disc on the tray does not play (servo is not activated), and only search operation is repeated.

3. Checking focus bias, tracking balance, focus gain, and tracking gain
   While a disc is playing, press the PLAY MODE key to switch a checking mode to focus bias, tracking balance, focus gain, or tracking gain. The mode is switched as the following order:

   Checking mode OFF → focus bias → tracking balance → focus / tracking gain

   1) Focus bias
      At the focus-bias checking mode, the LCD displays the diagram as shown below so that the bias setting level in the IC can be monitored.



Focus bias Bias value

The setting value of focus bias is expressed in 32 steps of hexadecimal.

Range displayed: -00 ~ F0

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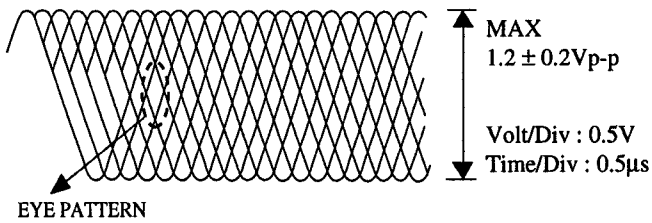
1 Checking RF level
- Test point: TPRF & VC
- Test disc: TCD-782

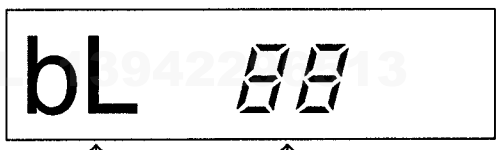
Check that the RF wave shapes the curve as shown below.



2 Manual operation of focus bias control
At the focus-bias checking mode, press the F. SKIP key or B. SKIP key to set the focus bias manually.

The setting range is -00 to F0 in 32 steps.
Check the RF wave shape with oscilloscope to adjust manually. Check that the initial value of RF signal level is pointed at maximum. This indicates that the automatic adjustment is functioning properly.

2) Tracking balance
At the tracking-balance checking mode, the LCD displays the diagram as shown below.

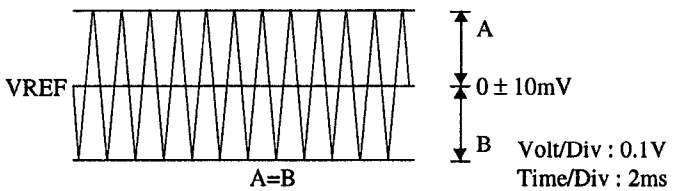


Range displayed: -00 ~ FF
Passing range: -E0 ~ 20

Tracking balance Tracking balance setting value

1 Checking tracking balance
- Test point: TPTE & VC
- Test disc: TCD-782

When servo becomes stable after playing the disc, press the MODE key to set to the traverse mode. Then, check that the TE wave shapes the curve as shown below.



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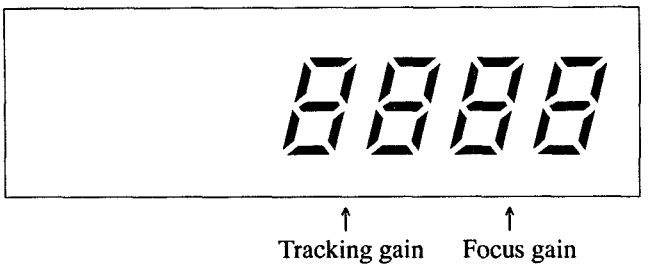
3) Focus and tracking gain

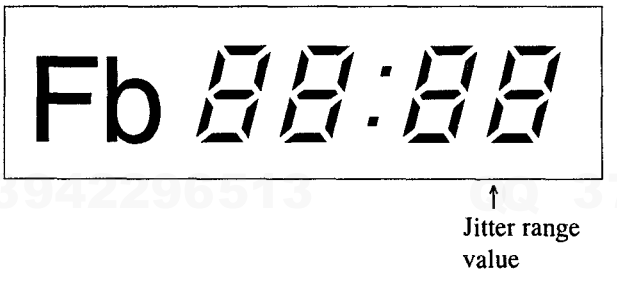
At the focus and tracking-gain checking mode, the LCD displays the diagram as shown below.



The range displayed for focus-gain : 7F ~ 00
The range displayed for tracking-gain : 7F ~ 00
Passing range : 30 ~ 20

4) Displaying the jitter variation range

At the focus-bias checking mode, the jitter variation range is displayed.
The digits, "00" represents the jitter value when a glass disc is played, and the jitter variation range starts from the value.
The displayed values are "00 " ~ " 99 " in 100 steps.



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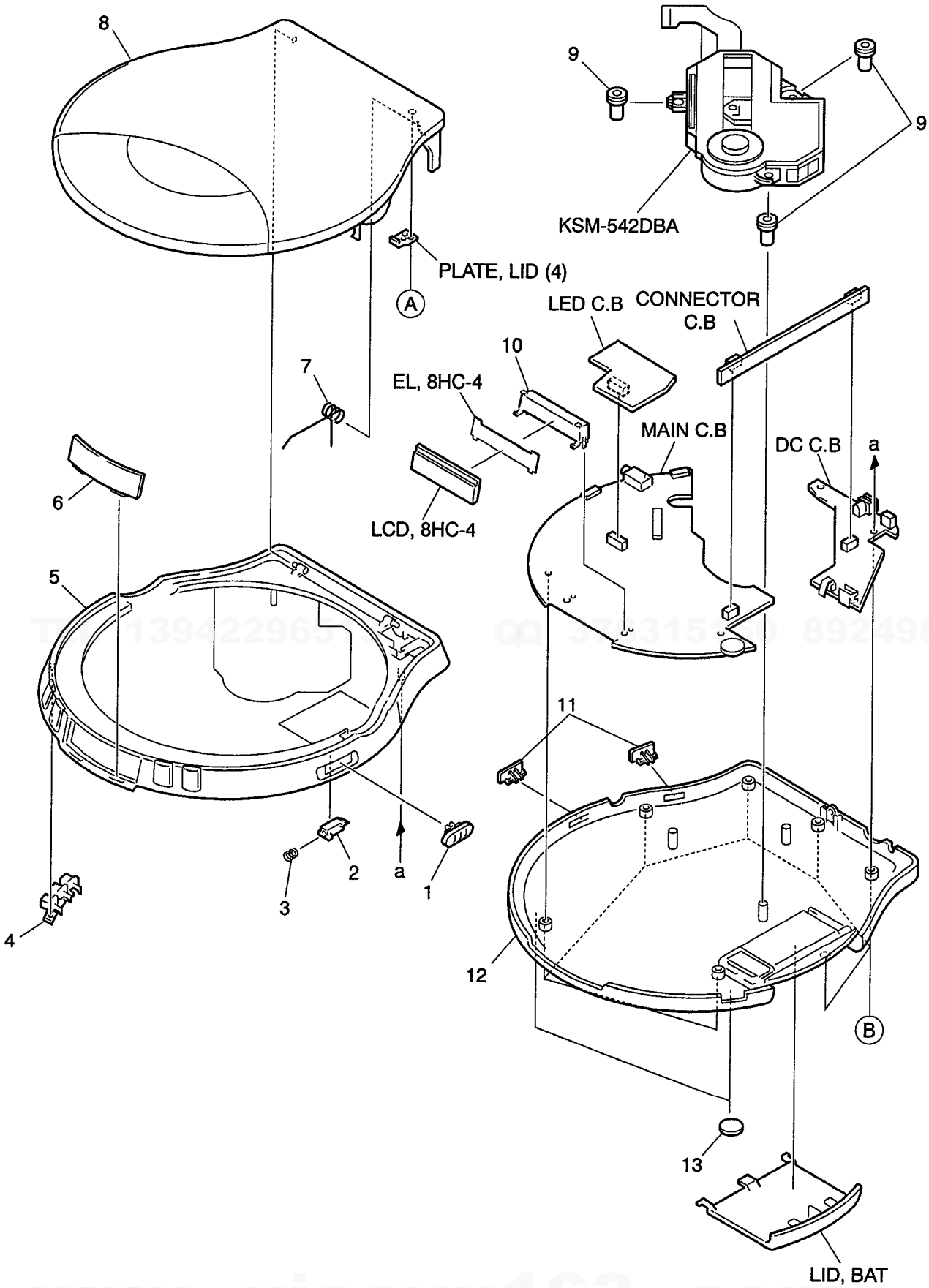
MECHANICAL EXPLODED VIEW 1 / 1



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MECHANICAL PARTS LIST 1 / 1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	88-HC4-012-010		KNOB,SL OPEN
2	88-HC4-204-010		LEVER,OPEN
3	88-HC4-206-010		SPR-C,SL
4	88-HC4-008-010		KEY,DISPLAY
5	88-HC4-019-110		CABI ASSY,TOP
6	88-HC4-021-010		WINDOW,DISPLAY
7	88-HC4-209-010		SPR-T,OPEN (4)
8	88-HC4-011-010		LID ASSY,CD
9	86-HC5-207-010		DMPR,MECHA (3)
10	88-HC4-201-010		GUIDE,LCD
11	88-HC4-009-010		KNOB,SL
12	88-HC4-020-110		CABI ASSY,BOTTOM
13	88-HC6-021-010		FOOT, DIA10
A	87-067-732-010		TAPPING SCREW, VT1.4-3
B	87-067-869-010		V+1.7-8 HL BLK

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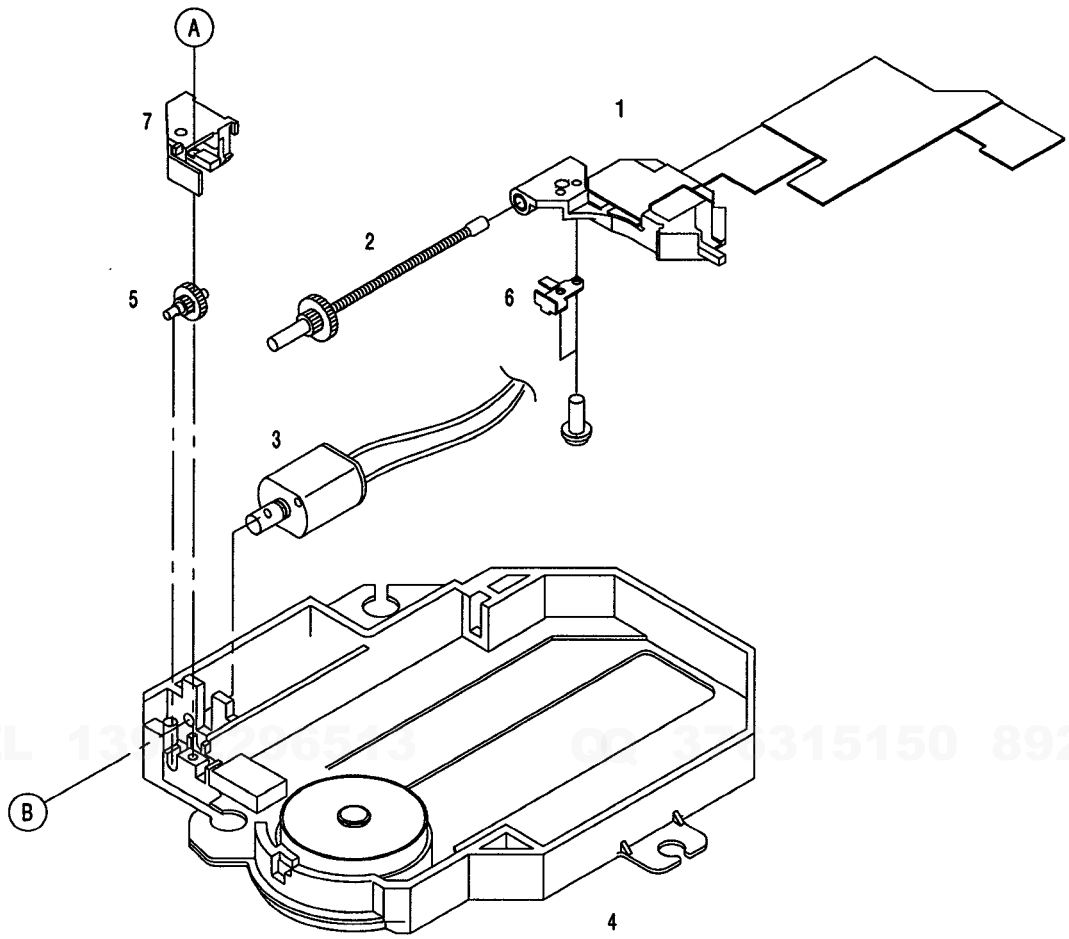
CD MECHANISM EXPLODED VIEW 1 / 1



CD MECHANISM PARTS LIST 1 / 1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	98-820-037-020		KSS-542D
2	9X-262-611-810		SLED SCREW ASSY
3	9A-491-080-4A0		SLED MOTOR ASSY
4	9A-491-207-3A0		MD ASSY
5	92-627-751-010		GEAR BN
6	92-627-754-010		LACK SPRING
7	92-646-389-010		HOLDER
A	92-646-352-010		TAPPING SCREW B2-8
B	92-627-668-010		SCREW M2-2.5

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ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	88-HC4-903-010		IB,EX-EGF<AEZ,AK>
1	88-HC4-901-010		IB,EX-ESF<770AU,779AU>
1	88-HC4-902-010		IB,EX-ESC<AHR>
2	86-YK1-001-110		ADAPTOR,CAP-6<779AU>
3	86-YK1-002-010		ADAPTOR,DC-602<779AU>
⚠ 4	87-042-158-310		AC ADAPTOR,AC-A62 E<AEZ>
⚠ 4	87-042-159-210		AC ADAPTOR,AC-A62K<AK>
⚠ 4	87-042-157-010		ADPTR,AC-A62 U<770AU,779AU>
⚠ 4	87-042-201-010		ADPTR,AC-A62 HEJ<AHR>
5	87-B30-087-010		HEADPHONE,HP-M012<770AU,779AU>
5	87-B30-089-010		HEADPHONE,HP-M013<AEZ>
5	87-B30-033-010		HEADPHONE,HP-24NSF<AHR,AK>
6	87-B30-141-010		BAT,NB-301 NC(2PCS)<AEZ,AK>
⚠ 7	87-A90-312-010		PLUG,CONVERSION WTN-1157R1<AHR>

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REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
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Printed in Singapore

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